

CLAIMS

1. A transfer case for a vehicle having front and rear axles, the transfer case comprising:
 - first and second input clutches connected with an input member;
 - first and second transfer chains having different chain ratios
 - 5 operatively connectable between said input member and the front and rear axles; and
 - a four wheel drive clutch operatively connected between one of said transfer chains and one of the axles;
 - wherein said first and second input clutches and said four wheel
 - 10 drive clutch are selectively engageable to provide a two wheel drive high ratio, a two wheel drive low ratio, a four wheel drive high ratio, and a four wheel drive low ratio.
2. The transfer case of claim 1, wherein said first input clutch selectively connects said input member with said first chain for driving the front axle, said second input clutch selectively connects said input member with the rear axle, and said four wheel drive clutch is connected with the
- 5 second transfer chain for selectively connecting the front and rear axles.
3. The transfer case of claim 2, wherein said first and second transfer chains are both in driving engagement with the front axle.
4. The transfer case of claim 3, wherein said second chain has a first sprocket member having a smaller tooth count than a second sprocket member which is directly driving the front axle, thereby accommodating a rear axle ratio greater than a front axle ratio.

5. The transfer case of claim 3, wherein said second chain has a first sprocket member having a tooth count greater than the tooth count of a second sprocket member which is directly driving the front axle, thereby accommodating a front axle ratio greater than a rear axle ratio.

6. The transfer case of claim 3, wherein said first input clutch selectively connects said input member with said first and second transfer chains for driving the rear axle, said second input clutch selectively connects said input member with the rear axle for directly driving the rear axle, and
5 said four wheel drive clutch selectively connects the first and second transfer chains with the front axle.

7. The transfer case of claim 6, wherein said second chain is in driving engagement with the rear axle.

8. The transfer case of claim 1, wherein said first and second input clutches and said four wheel drive clutch comprise dog clutches.

9. A drive train for a vehicle comprising:
front and rear axles; and
a transfer case including:
first and second input clutches connected with an input
5 member;
first and second transfer chains having different chain ratios
operatively connectable between said input member and the front and rear
axles; and
a four wheel drive clutch operatively connected between one
10 of said transfer chains and one of the axles;

wherein said first and second input clutches and said four wheel drive clutch are selectively engageable to provide a two wheel drive high ratio, a two wheel drive low ratio, a four wheel drive high ratio, and a four wheel drive low ratio.

10. The drive train of claim 9, wherein said first input clutch selectively connects said input member with said first chain for driving the front axle, said second input clutch selectively connects said input member with the rear axle, and said four wheel drive clutch is connected with the
5 second transfer chain for selectively connecting the front and rear axles.

11. The drive train of claim 10, wherein said first and second transfer chains are both in driving engagement with the front axle.

12. The drive train of claim 11, wherein said second chain has a first sprocket member having a smaller tooth count than a second sprocket member which is directly driving the front axle, thereby accommodating a rear axle ratio greater than a front axle ratio.

13. The drive train of claim 11, wherein said second chain has a first sprocket member having a tooth count greater than the tooth count of a second sprocket member which is directly driving the front axle, thereby accommodating a front axle ratio greater than a rear axle ratio.

14. The drive train of claim 11, wherein said first input clutch selectively connects said input member with said first and second transfer chains for driving the rear axle, said second input clutch selectively connects said input member with the rear axle for directly driving the rear axle, and
5 said four wheel drive clutch selectively connects the first and second transfer chains with the front axle.

15. The drive train of claim 14, wherein said second chain is in driving engagement with the rear axle.

16. The drive train of claim 9, wherein said first and second input clutches and said four wheel drive clutch comprise dog clutches.

17. The drive train of claim 9, wherein the transfer case is characterized by the absence of a planetary gear set.

18. A transfer case for a vehicle having front and rear axles, the transfer case comprising:

first and second input clutches connected with an input member;

first and second transfer chains having different chain ratios

5 operatively connectable between said input member and the front and rear axles; and

a four wheel drive clutch operatively connected between one of said transfer chains and one of the axles;

10 wherein said first and second input clutches and said four wheel drive clutch are selectively engageable to provide a two wheel drive high ratio, a two wheel drive low ratio, a four wheel drive high ratio, and a four wheel drive low ratio;

15 wherein said first input clutch selectively connects said input member with said first chain for driving the front axle, said second input clutch selectively connects said input member with the rear axle, and said four wheel drive clutch is connected with the second transfer chain for selectively connecting the front and rear axles;

wherein said first and second transfer chains are both in driving engagement with the front axle; and

20 wherein said second chain has a first sprocket member having a smaller tooth count than a second sprocket member which is directly driving the front axle, thereby accommodating a rear axle ratio greater than a front axle ratio.

19. The transfer case of claim 18, wherein the transfer case is characterized by the absence of a planetary gear set.